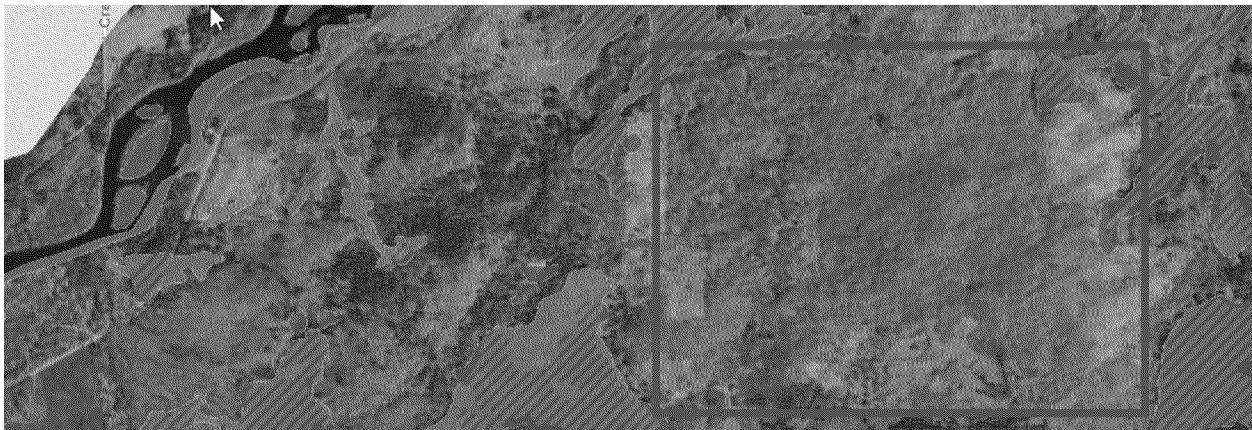


LEDPA Economics and Feasibility

From response to public comment:

“The preferred site alternative maximizes use of the upland acreages in the vicinity of the mine pit to the extent possible, as described in some of the responses above. As shown in the LEDPA analysis, several other alternatives were evaluated and were considered economically infeasible and/or not prudent with respect to wetland impacts (refer to LEDPA Table 4-1).

Off-site ore processing was evaluated as Alternative Site Plan B in the LEDPA, and was deemed not economically viable due primarily to increased ore transport costs. No locations or transportation cost were included as part of the LEDPA. As described in comments above, there is a high sensitivity of the Project to material transport costs since ore, waste rock, tailings, and water transport costs make up a significant portion of the Project’s operating costs. Any significant expansion of the Project Area (whether in the vicinity of the site or off-site) renders the Project economically unviable simply as a result of the transportation costs combined with the lack of any existing facility to handle any of these mine products or by-products in the region. No analysis regarding costs and economic viability have been included in the LEDPA. These statements are not substantiated.



State land to east of project area

Response #6.4:

The State-owned land east of the Project Boundary was considered for siting of Project facilities such as mine waste storage, contact water storage, and ore processing; but was rejected because the longer transport distances for waste rock, ore, and water would render that alternative economically infeasible and not optimal from an environmental and worker health and safety perspective, for the reasons described above. This property was not included in the LEDPA. Also, as shown in the NWI wetland map on the MDEQ website, the State-owned land also contains wetland acreage that would need to be avoided in any site plan to use that area and would be subject to the same kind of “indirect impact analysis” that we have evaluated on the existing Project site. Wetlands Map Viewer does not show any wetland complexes on the State of Michigan land adjacent to the project area. Using Wetlands Map

Viewer, I was able to measure 900 acres of upland adjacent to the project site and proposed development. While Aquila may have mineral rights in the land to the east, those mineral rights do not give them any control over the surface use. I contacted the Manager of DNR Real Estate Services and asked if Aquila has inquired after the availability to develop this property. DNR responded: "Aquila has never proposed that lands in these Sections be part of the exchange. The only have indicated that there will be likely future easement applications for utilities and roads, but to date, no applications have been submitted."

Aquila's application map and March 2018 technical report shows that Aquila has both minerals and surface leases in the area of interest (SOM property).

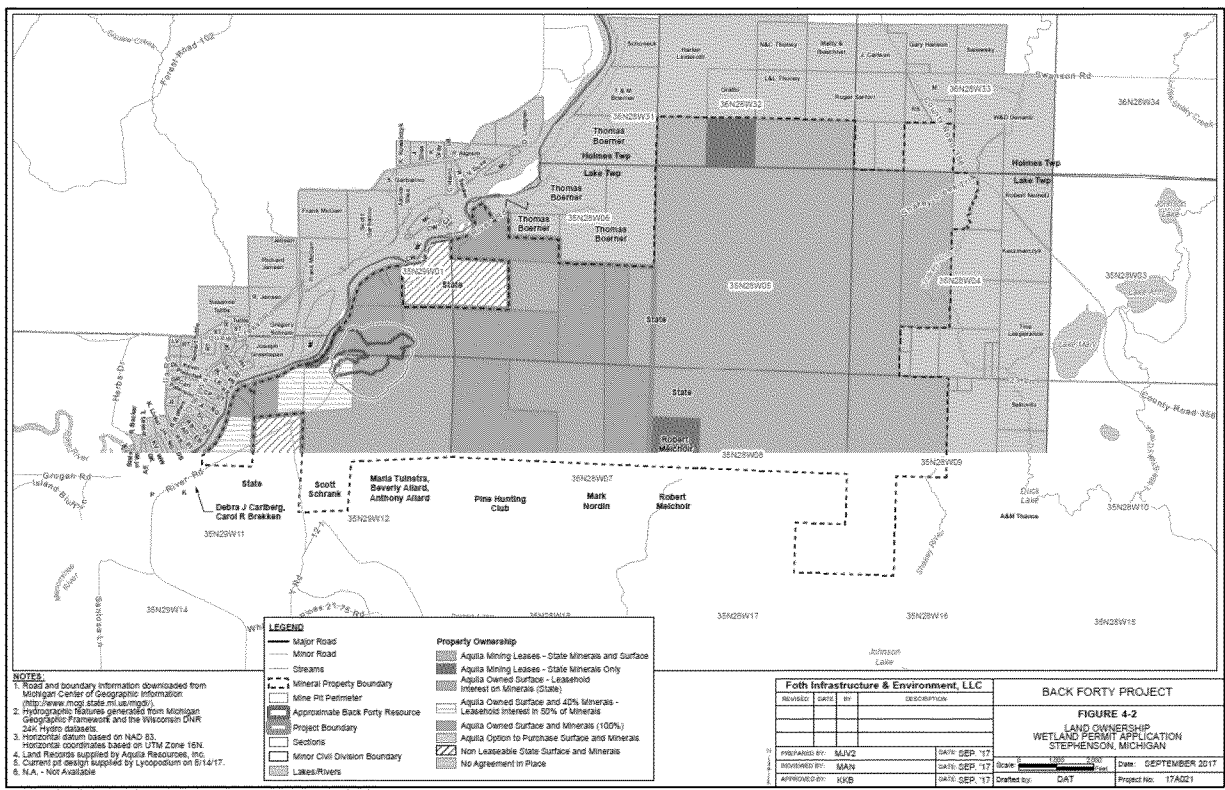
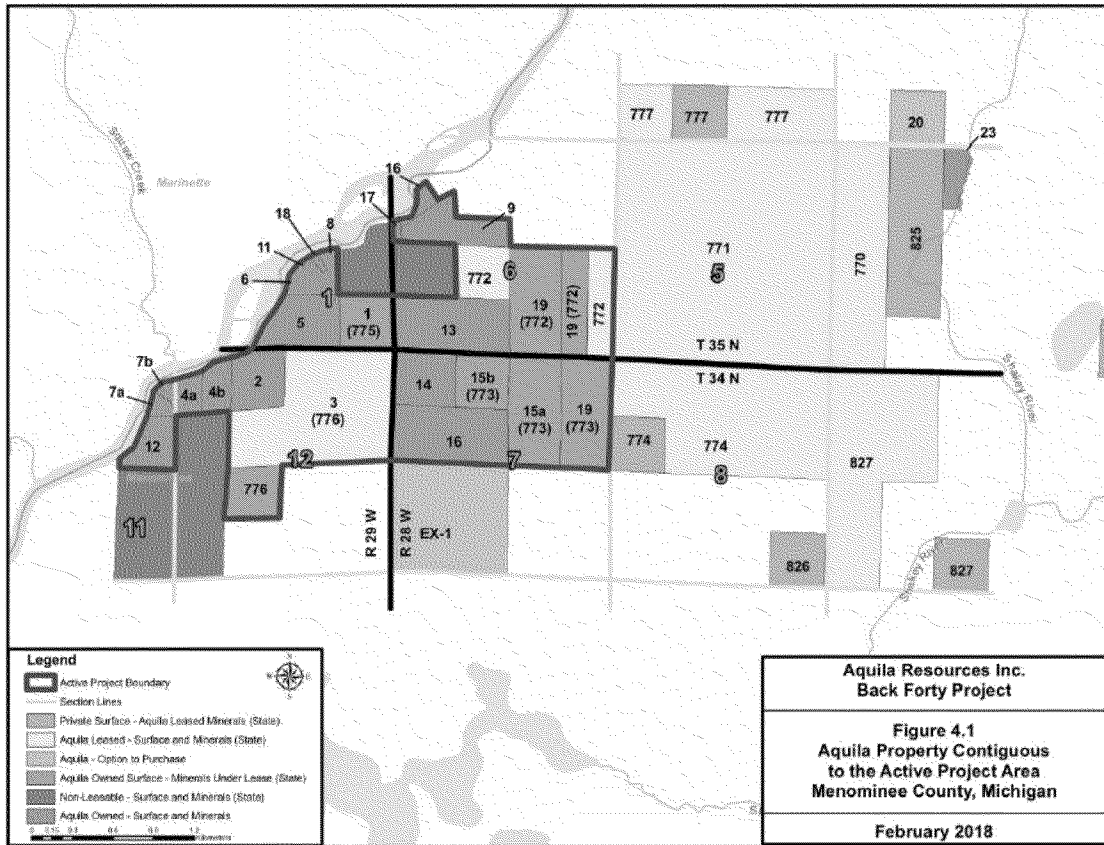


Figure 4.1 Back Forty Project Property



Source: Aquila Resources Inc. (2018)

The straight-line hauling distance from the center of the mine pit to the general vicinity of the proposed process plant and mine waste storage area as currently proposed is approximately 3,000 feet (the wetlands application LEDPA states that this distance is 3,900 feet; I measured 3,800 from center to center); whereas the straight-line hauling distance to the State-owned land to the east is approximately 10,000 feet (center of the pit to the property line is 7,800 feet). A typical hauling cost for ore and waste rock is assumed to be approximately \$0.50 per ton per 1,000 feet (the financial assurance estimate for the 632 application states that it will cost \$1.15/ton to relocate waster rock from the TWRMF to the pit, an estimated 3,900 feet. This would mean that it is approximately \$0.29/ton per 1,000 feet).

This response assumes that the DEQ is requesting an alternative of moving the facilities and waste rock storage to only the SOM property to the east of the project site. What we have requested is that area be included in the LEDPA for some potential storage. I a few hundred acres of the TWRMF extend onto this parcel, that may allow for the Mine Waste Storage Area to avoid the wetlands in the center of the project area.

For the approximate total quantity of ore and waste rock expected for the Back Forty Project (totaling approximately 60 million tons), the total transport cost as currently proposed will be approximately \$90 million. If the mine waste storage area and contact water basin were located on the State-owned land to the east with the resultant hauling distance thereby increased to 10,000 feet, the hauling costs would increase to approximately \$300 million. The costs to relocate the waste rock back to the mine pit at closure would be similar, so effectively increasing the total costs for transportation costs on the Project from approximately \$180 million to \$600 million. And if the contact water basins were also to be located on the State-owned land, pumping costs would also increase significantly.

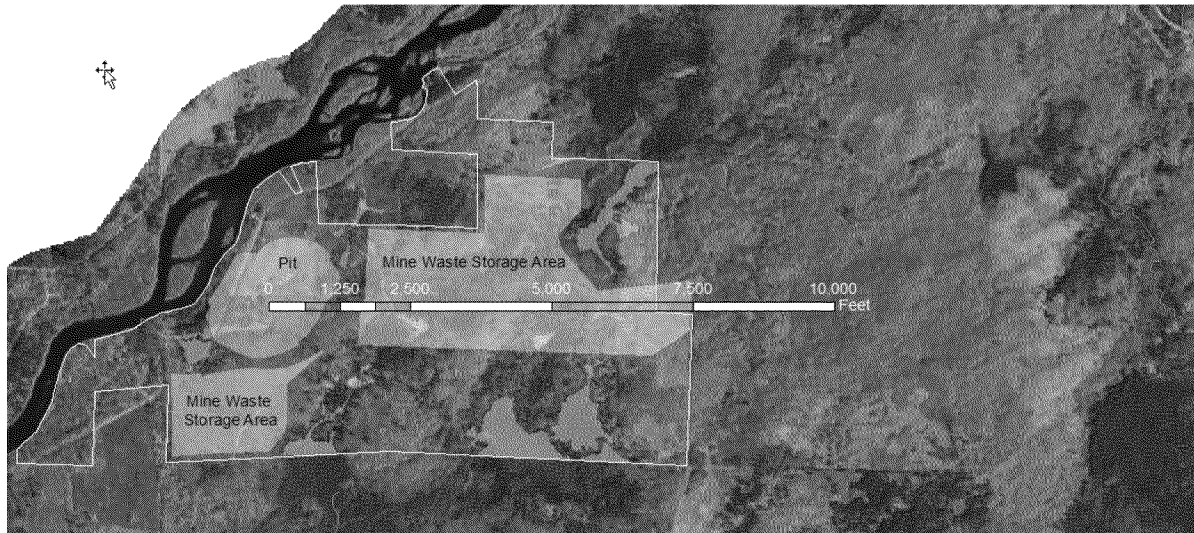
As measured on GIS:

Approximate center of the mine pit to the proposed processing plant: ~3,800 feet

Processing Plant to center of Mine Waste Storage Area (TWRMF): ~2,600 feet


Processing plant to east property line (direct): ~4,800 feet

Center of pit to east property line: ~7,800 feet



From the 632 Closure Financial Estimate – relocation of material from TWRMF to pit is \$1.15/ ton.

Reclamation and Monitoring Cost Estimate

		Client: Aquila	Scope ID.: 14A012		
		Project: Final Reclamation Cost Estimate			
		Prepared by: JPH	Date: 10/14/15		
		Checked by: JOS	Date: 10/30/15		
Reclamation and Monitoring Cost Estimate			Life of Mine Estimate		
				Item	
Item	Units	Unit Cost	Quantity	Total	Comments
Open Pit Restoration					
<i>1) Rock & Tailings Relocation</i>					
Rock relocation to Mine Pit	tonne	\$1.15	44,000,000	\$50,600,000	Open Pit Data
<i>2) Pit Improvements</i>					
Place and compact soil cover	cu.m	\$4.00	1,582,000	\$6,328,000	Open Pit Data
Place and grade topsoil	cu.m	\$6.00	35,625	\$213,750	Open Pit Data
Hydro-Seeding	sq.m	\$0.35	237,500	\$83,125	Open Pit Data
			Subtotal	\$57,224,875	
Buildings and Structures					

ROCK MOVING	SCOPE	RATE	UNIT	DETAILS
TWRMF Rock Relocation	Load/Haul/Dump by Contractor	\$1.15	tonne	From TWRMF to Open Pit Using Mine Fleet
TWRMF Tailings Relocation	Load/Haul/Dump by Contractor	\$1.25	tonne	From TWRMF to Open Pit Using Mine Fleet
Overburden from Stockpiles	Load/Haul/Dump by Contractor	\$4.00	cu.m	From Stockpile to Open Pit Using Mine Fleet
Topsoil from Stockpiles	Load/Haul/Dump by Contractor	\$6.00	cu.m	From Stockpile to Open Pit Using Mine Fleet

TABLE 24.1 GENERAL PROJECT INFORMATION - BASE CASE		
Description	Unit	Amount
Life-of-mine (LOM)	years	16
Sulphide Flotation Process Rate (open pit)	t/d	4,500
Oxide Leach Process Rate (open pit)	t/d	650
Strip Ratio	waste:mineralized material	3.86
Total Project Capital Cost	\$ million	407.3
Initial Project Capital Cost	\$ million	261.4
Average Overall Operating Cost	\$/t milled	37.33
Pre-tax Net Present Value (NPV) at 6% Discount Rate	\$ million	282.2
Pre-tax Internal Rate of Return (IRR)	%	38.8
Pre-tax Payback Period	years	1.4
Post-tax NPV at 6% Discount Rate	\$ million	210.8
Post-tax IRR	%	32.0
Post-tax Payback Period	years	1.8

A typical net present value expected for a mining project similar to the Back Forty Project would be on the order of \$250 million. Therefore, the additional operational transport costs for ore, waste rock, and water of over \$200 million would certainly result in a negative net present value, and therefore result in an economically infeasible project. It may be correct that the net present value of the project is more highly sensitive to metal prices and ore grades than operating costs, but this would certainly not be the case if average hauling distanced were more than tripled. From an overall "environmental footprint"

perspective, to spread out the mine operation (as compared to consolidating it as currently proposed) by building a haul road to a site at least 4,000 feet further east would result in both direct additional landscape impacts as well as secondary or indirect impacts to otherwise relatively undisturbed parcels. Moving facilities to the east parcel would impact uplands and potentially result in the avoidance of direct impacts to regulated wetlands within the project site. Reconfiguration of the project may result in the avoidance of direct impacts to WL-6, B1/B2/B1c, 4A, 2c which would minimize the project's overall wetland impacts. The applicant has claimed that these wetland complexes are not connected to groundwater and would not be subject to impacts from groundwater reductions/ pit dewatering. The claims that these wetlands are not connected to or influenced by groundwater is unsubstantiated and these wetlands may be impacted by groundwater reductions even if they are avoided by direct dredge and discharge impacts.

Tetra Tech prepared an economic evaluation of the Project based on a pre-tax financial model. The NPV was estimated at the beginning of the two-year construction period. The pre-tax financial results are:

- 38.8% IRR
- 1.4-year payback on the \$261.4 million initial capital costs
- \$282.2 million NPV at a 6% discount rate.

Aquila commissioned Timothy G. Lynott, CMA, Mining Tax Expert, to prepare the tax calculations for use in the post-tax economic evaluation of the Project with the inclusion of US Federal and Michigan Severance taxes.

The following post-tax financial results were calculated:

- 32.0% IRR
- 1.8-year payback on the \$261.4 million initial capital costs
- \$210.8 million NPV at a 6% discount rate.

As provided in Section 19.0 of this technical report, the base case metal prices used in the economic analysis are as follows:

- gold: \$1,293/oz
- zinc: \$0.96/lb
- copper: \$3.18/lb
- silver: \$20.46/oz
- lead: \$0.96/lb.

The net present value of the project is based on a 16-year life of mine. Post-tax evaluation estimates a \$210.8M revenue.

From

LEDPA

Economic Viability Criteria

As mentioned, tailings and waste rock storage areas require a liner system as required by 632 R425.409 (a)(i)(A). A liner system is a significant portion of the Project capital cost. As shown in Table 4-1, alternatives F, G, and H have combined tailings/waste rock storage footprints of 17.6, 17.0, and 15.9 million square feet (MSF), respectively, compared to 14.3 MSF for the preferred alternative. Hauling distances (measured in a straight-line) for waste rock are approximately 2,000 feet, 3,000 feet, and 4,100 feet for the three alternatives, respectively, compared to 3,900 feet for the preferred alternatives, as shown in Table 4-1. Also, Alternatives F and G rely on wet slurry tailings which can be costly to cap at closure. All aspects considered, Alternatives F, G, and H were all deemed not economically viable since their capital

Based upon the distance identified in the LEDPA and the costs identified in the Part 632 cost closure analysis (\$1.15/ton from TWRMF to backfill pit), the cost to haul one ton of ore 1,000 feet is \$0.2948. This may not be a fair comparison to indicate that the transportation costs of hauling an extra 1,000 linear feet is the same as the initial 1,000 feet and it is unclear if the cost includes loading, deposition and placement, which would involve other equipment/ operators.

Cost per 1000 feet	60Mt to TWRMF			44Mt from TWRMF to Pit		
	\$0.29/ton	\$0.38/ton	\$0.50/ ton	\$0.29/ ton	\$0.38/ton	\$0.50/ ton
2000	34800000	45600000	60000000	25520000	33440000	44000000
3000	52200000	68400000	90000000	38280000	50160000	66000000
3800	66120000	86640000	114000000	48488000	63536000	83600000
3900	67860000	88920000	117000000	49764000	65208000	85800000
4000	69600000	91200000	120000000	51040000	66880000	88000000
7800	135720000	177840000	234000000	99528000	130416000	171600000
10000	174000000	228000000	300000000	127600000	167200000	220000000

Total Cost			
	\$0.29/ ton	\$0.38/ton	\$0.50/ ton
2000	60320000	79040000	104000000
3000	90480000	118560000	156000000
3800	114608000	150176000	197600000
3900	117624000	154128000	202800000
4000	120640000	158080000	208000000
7800	235248000	308256000	405600000
10000	301600000	395200000	520000000

Response #6.2

As mentioned, transport costs for mined materials and water typically drive the economics of mining projects, as is the case with this Project. As noted above, transport distances are also a significant driver of environmental impacts associated with mine projects as well as the health and safety of mine workers. Over the operating life of mine, transport of ore and mine wastes over even modest distances can result in costs substantially greater than similar mines, since the mining industry typically strives to optimize projects by reducing transport distances to the greatest extent possible. Therefore, it is imperative that mine waste storage areas and basins be located immediately adjacent to the mine development for this Project to be economically viable/feasible and optimized environmentally. And, as described in other portions of the permit application documents, since an off-site process plant is not feasible or prudent for this Project, a process plant must also be located on-site. Therefore, in this case, direct impacts to (removal of) portions of wetlands immediately surrounding the mine pit (WL-6, WL-4a, WL-2c, WL-B2, WL-B1, and WL-52) are unavoidable. Since the liner is required beneath the mine waste storage area under Part 632, construction of mine waste storage area liners are also unavoidable.

From Aquila March 2018 Technical Report

24.2 ALTERNATE PROJECT CONFIGURATION FOR CONSIDERATION

An alternate project configuration was evaluated that focusses on a shorter life of mine of 5+ years with open pit operation based on minimizing capital costs and extracting the near surface high grade mineralization. The smaller open pit was planned over a six-year period with a peak mine production rate of 800,000 t/a, with contractor mining employed. The smaller pit, based on pit shell #13 from the base case optimization, would reduce financial and operating Project risk. The alternate configuration provides optionality for the Project to proceed while considering market conditions at the conclusion of the mine operations. The initial capital cost for the alternate Project configuration is estimated at \$100.8 million and the LOM operating cost is \$36.25/t milled. The pre-tax payback for the alternate configuration is 2.1 years, the pre-tax IRR is 38.6%, and the pre-tax NPV at 6% is \$129.4 million.

24.8 UNDERGROUND

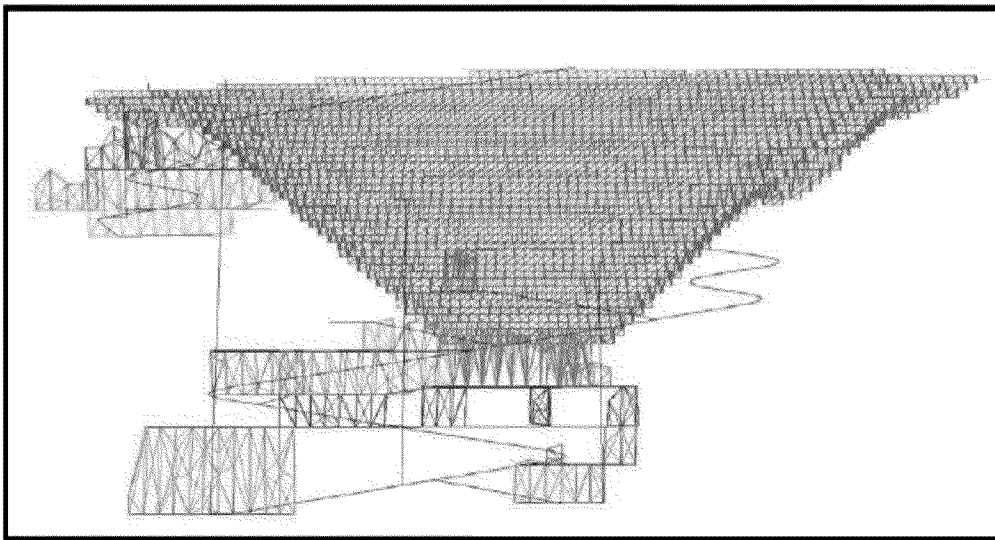
Long-hole open stoping is the principal bulk mining method selected for the extraction of the Back Forty underground deposit. For partial pillar recovery and mining in areas where overcut sills are not warranted, up-hole retreat methods will be utilized. The long-hole stopes will be filled mostly with unconsolidated fill (waste rock) and cemented rock fill in primary stopes, and on top of sill pillars to facilitate partial recovery of the sills. The surface crown pillar and the open pit crown pillars are included in the mine plan.

The underground deposit consists of an upper North Zone outside of the open pit and a lower Main Zone immediately below the pit.

The alternative project configuration as stated in the Aquila March 2018 technical report, appears to be similar to the project that Aquila has proposed to MDEQ for the Part 632 and wetlands application. The net present value (NPV) on the open pit configuration is \$129.4M. If the project is as financially sensitive as what is stated in the response to public comments, is this design feasible given the potential requirements for a pit liner under Part 22 and the cost of carbonate amendment?

Access to the underground will be via a surface decline to the North Zone and an in-pit ramp to the Main Zone. The ramp dimensions will be 5 m wide by 5 m high, and will be driven at a grade of -15%. No connection between the zones is planned in the PEA study. Figure 24.8 presents the complete integration of the underground mine plan with the open pit.

Figure 24.8 Underground Mine Integrated with Open Pit



Source: 2014 Tetra Tech PEA on Back Forty

TABLE 24.8 CAPITAL COST SUMMARY				
WBS Level No.	WBS Level 1 Description	Initial Capital Cost (\$ million)	Sustaining Capital Cost (\$ million)	Total Capital Cost (\$ million)
1A	Open Pit Mining	14.4	10.8	25.2
1B	Underground Mining	-	45.3	45.3
2	Processing	96.7	-	96.7
3	TWRMF	31.8	11.8	43.6
4	Site Infrastructure	31.2	-	31.2
5	Environment	3.3	46.8	50.1
Direct Capital Subtotal		177.4	114.7	292.1
6	Indirect Capital	33.4	5.9	39.3
7	Owner's Cost	6.4	1.3	7.6
8	Contingency	44.2	24.0	68.3
Total		261.4	145.9	407.3

Note: Numerical values may not add up due to rounding.

24.9.2 Operating Cost

The total operating cost for the Project LOM is estimated at \$601.9 million. A summary of the Project LOM costs, presented based on an organizational breakdown structure Level 1 detail, is shown in Table 24.9. Units are expressed in total dollars and a unit per tonne processed. During the open pit mine operations from Years 1 to 6 inclusive, the average annual unit operating cost for the Project is \$28.92/t milled. During the underground mine operations from Years 7 to 16 inclusive, the average annual unit operating cost for the Project is \$65.21/t processed.

<p style="text-align: center;">TABLE 24.9 PROJECT LOM OPERATING COST SUMMARY</p>				
OBS Level 1 No.	OBS Level 1 Description	LOM Cost (\$ million)	Percentage of Cost (%)	Unit Cost (\$/t processed)
1	Open Pit Mining	131.3	21.8	10.52
2	Re-handling	0.3	0.1	0.03
3	Underground Mining	128.6	21.4	35.29
4	Processing	245.1	40.7	15.21
5	TWRMF	25.2	4.2	1.56
6	General and Administrative	71.3	11.8	4.42
Total		601.9	100.0	37.33

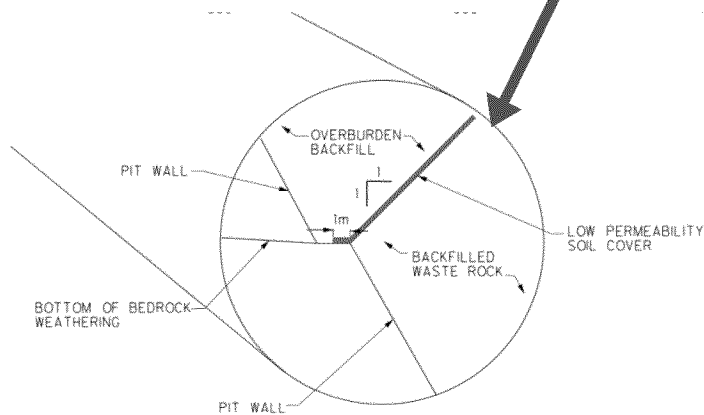
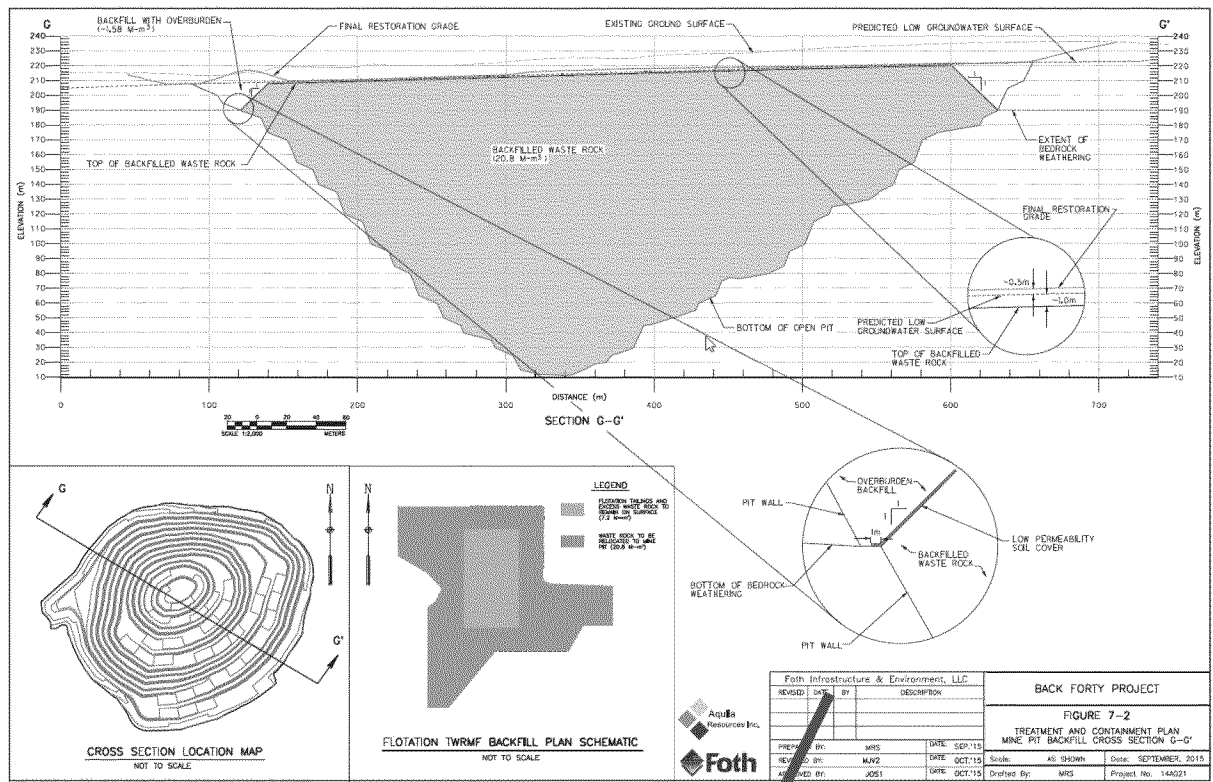
Note:

- (1) Numerical values may not add up due to rounding.
- (2) Open pit and underground unit costs are for their respective years of operation and tonnes.

Costs of closure/ pit requirements

The applicant will be required to demonstrate that the placement of waste materials within the pit will not result in a discharge to ground and surface waters (Part 22 requirement). A pit liner will likely be required to isolate the acidic and ionized metals from precipitating into adjacent ground and surface waters. In review of the Part 632 permit/application, the applicant does not propose a non-permeable liner for the pit. The applicant includes one figure within the 632 project plans that indicates that a liner may be placed on the pit; however, there is no discussion in the application of what material this liner may be made of and the Part 632 permit does not contain any special conditions regarding liners of the pit. A review of the Part 632 closure costs shows that there is no consideration of a pit liner. The Part 632 application states that there is no native material onsite that is sufficient liner material.

TWRMF liner disposal is proposed for either the pit or a landfill but is given the same cost analysis for both options. The pit backfill quantity does not specifically include liner material. The 632 permit is conditioned for TWRMF capping requirements plans prior to reclamation.



The Part 632 closure costs indicate that crushed limestone (the intended carbonate amendment) will cost \$38/ cyd and \$15/cu.m. for delivery and placement. The cost for crushed limestone amendment is estimated to cost \$65/ cu.m. The total cost is not included in the site reclamation costs or financial assurance assessment.

If the company needs to source sufficient material to line the pit and amend the backfilled waste material and the TWRMF material, is the cost of sourcing and placing that material economically feasible?

Questions??

How many millions of cubic meters of crushed limestone is sufficient for amendment?

How much material will be needed to line the proposed pit prior to backfilling?